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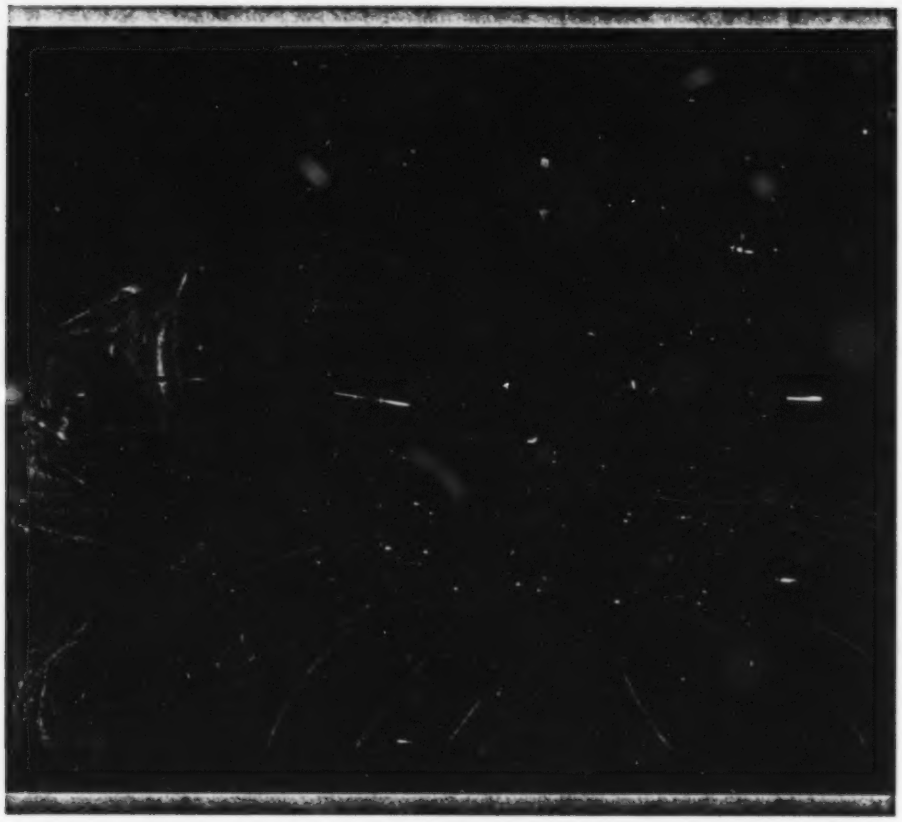
ALBERTA CANCER BOARD



ALBERTA HERITAGE SAVINGS TRUST FUND APPLIED RESEARCH / CANCER RESEARCH INITIATIVE PROGRAM 1990-91 ANNUAL REPORT

ALBERTA CANCER BOARD

92-04454/

The Alberta Cancer Board

The Alberta Cancer Board was established in 1968 with the passage of the Cancer Treatment and Prevention Act. Until then, cancer services had fallen under the general mandate of Alberta Health. As the frequency of all cancers increased, and cancer medicine or oncology became more advanced and specialized, the Government of Alberta recognized the importance of passing a Cancer Act and establishing an independent Board to assume responsibility for cancer across the province.

The Alberta Cancer Board offers programs in both northern and southern Alberta. The Northern Alberta Cancer Program is offered through the Cross Cancer Institute in Edmonton and through associate clinics in Grande Prairie and Red Deer. The Southern Alberta Cancer Program is offered through the Tom Baker Cancer Centre in Calgary and through associated clinics in Lethbridge and Medicine Hat.

The Government of Alberta funds the Alberta Cancer Board, basing its annual funding on government fiscal policies and on Alberta Cancer Board budgets submitted annually. The Alberta Cancer Board also receives support for research and education from the Alberta Heritage Savings Trust Fund, Alberta Heritage Foundation for Medical Research, the Universities of Alberta and Calgary, industry, and national and international research granting agencies.

The Board generates some revenue from the treatment of out-of-province patients and from other incidentals, while corporations, community groups and individuals offer support through the Alberta Cancer Foundation which handles charitable donations given to the Alberta Cancer Board.

Alberta Cancer Board Members

Mr. A.D. Davis, Chairman	Calgary
Mr. W.R. Barry	Calgary
Mr. R. Bodner	Edmonton
Mr. J. Darryl Carter	Grande Prairie
Dr. L.M. Dushinski	Edmonton
Mr. Z. Feldman	Edmonton
Mr. V.N. Heaver	DeWinton
Mrs. P. Pelkie	Calgary
Dr. M. Smith	Edmonton
Ms. P.A. Smith	Edmonton

For More Information Please Contact:

Alberta Cancer Board
6th Floor, 9707 - 110 Street
Edmonton, Alberta T5K 2L9
Telephone (403) 482-9300
FAX (403) 488-7809

ALBERTA CANCER BOARD
6th FLOOR, 9707 - 110 STREET
EDMONTON, ALBERTA T5K 2L9
(403) 482-9300 FAX (403) 488-7809

The Honorable Nancy J. Betkowski
Minister, Alberta Health
320 Legislature Building
Edmonton, Alberta T5K 2B6

Dear Minister:

Re: AHSTF-ARC Alberta Cancer Board Research Initiative Program

On behalf of the Alberta Cancer Board, I am pleased to present this report on the Alberta Heritage Savings Trust Fund Applied Research - Cancer Research Initiative Program for the year ending 31 March 1991.

The Program continues to be a success by providing an excellent applied cancer research environment which has attracted a talented research staff. As a result of the collaborative efforts promoted by this Program, research has extended from the laboratory to the bedsides of the cancer patients we serve.

An integral part of this Program is the evaluation of the research proposals which is conducted by the Advisory Committee on Research with the assistance of recognized cancer researchers in Canada and the United States. This peer review system adds to the uniqueness and success of the Program.

On behalf of cancer researchers who are recipients of the Program and cancer patients and their families who will benefit from the cancer research, we extend our appreciation to you and your government for your continued support to maintain the high level of research activity by providing funding for the Alberta Heritage Savings Trust Fund Applied Research - Cancer Research Initiative Program.

Yours sincerely,

Arthur D Davis

A.D. Davis
Chairman

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ALBERTA CANCER BOARD

ALBERTA HERITAGE SAVINGS TRUST FUND APPLIED RESEARCH / CANCER RESEARCH INITIATIVE PROGRAM 1990-91 ANNUAL REPORT

ALBERTA CANCER BOARD

Administration of the Research Initiative Program

The Government of Alberta has provided funds for applied cancer research from the Alberta Heritage Savings Trust Fund since 1977. The Alberta Heritage Savings Trust Fund Applied Research Cancer (AHSTF-ARC) Program was modified in 1987 with its direction being initiatives, specifically, theme-oriented multidisciplinary programs. This new focus, titled the Research Initiative Program, is designed to stimulate inter-disciplinary research between clinical and basic scientists, which consists of colleagues from the cancer institutes, universities and other centres who have developed collaborative cancer research programs. This Program is administered by the Alberta Cancer Board under the authority granted by the Government of Alberta.

The Alberta Cancer Board has appointed the Advisory Committee on Research (ACOR) consisting of seven international oncology experts knowledgeable in various fields of cancer research. This Committee advises the Alberta Cancer Board in the utilization of the AHSTF-ARC funds, the review mechanisms for disbursement of the funds, the evaluation of the proposals and the development and administration of research policy.

The Corporate Research Committee of the Alberta Cancer Board consists of members representing the medical and scientific cancer community, the cancer centres of the Alberta Cancer Board, the University of Alberta and the University of Calgary. This Committee informs the Alberta Cancer Board and ACOR of local research issues and priorities affecting cancer research. The Corporate Research Committee is the liaison between the medical and scientific cancer community of the Province of Alberta, ACOR and the Alberta Cancer Board.

To be eligible for support through the AHSTF-ARC program, the research initiative should be related directly to the problem of cancer. In addition to the study of cancer as an experiment of nature, the research could deal with the application of basic findings from any discipline to the control of cancer, including advances in prevention, diagnosis and treatment, and research development needed to apply these directly to patient care. It is not expected that the AHSTF-ARC program will be the sole source of support for these programs. The Alberta Cancer Board encourages applicants to seek support from other agencies for aspects of their research initiative which the AHSTF-ARC program does not fund such as graduate students, postdoctoral fellows, scientists salary, major equipment and contract maintenance. Support for these aspects may be sought from the Medical Research Council, the National Cancer Institute of Canada, the Alberta Heritage Foundation for Medical Research and other granting agencies. Ongoing interaction is maintained with these other granting agencies to avoid duplication and to foster collaborative cancer research activities.

The process for application to the AHSTF-ARC program requires submission of a grant proposal to a competition. Proposals are screened for completeness and reviewers are assigned. Two members from the ACOR are appointed as internal reviewers. They are appointed to proposals which are related to their area of expertise. In addition, two to three external experts are appointed to review each proposal to ensure that a comprehensive assessment of the application occurs. These individuals are physicians and scientists with noted expertise in the area of the proposed research. They are selected from the references listed in the proposal or they are suggested by their peers who recognize them as experts in the field. These external reviewers must not be involved in the research proposed and are, generally, from provinces other than Alberta, the United States or Europe.

Written reports by the internal and external reviewers are considered by ACOR. The applications are rated and ranked according to scientific merit and relevance to cancer. ACOR establishes a cut-off level for funding of proposals. In some instances, the evaluation of programs are coordinated with other agencies (including the Medical Research Council, National Cancer Institute of Canada, and the Alberta Heritage

Foundation for Medical Research) where research initiatives require funding for several categories of support which would include postdoctoral fellows, students, major equipment, scientists, and contract maintenance. The recommendations of ACOR are forwarded to the Alberta Cancer Board for consideration. The Alberta Cancer Board submits its recommendation to the Minister of Alberta Health. Upon receipt of Ministerial approval, applicants are notified of the outcome of the competition. Each program approved must provide an annual report which is reviewed by ACOR.

Four formal competitions for research initiative support and clinical trials through the AHSTF-ARC have been held to March 31, 1991. The research programs supported during the 1990/91 are outlined in this report.

ALBERTA HERITAGE SAVINGS TRUST FUND APPLIED RESEARCH
Cancer Research Initiative Program

Competition 1

Ministerial Approval	April 1987
Total Requests Received	30
Total Requests Approved	22

Competition 2

Ministerial Approval	May 1988
Total Requests Received	15
Total Requests Approved	9

Competition 3

Ministerial Approval	March 1989
Total Requests Received	18
Total Requests Approved	14

Competition 4

Ministerial Approval	March 1990
Total Requests Received	24
Total Requests Approved	16

ALBERTA HERITAGE SAVINGS TRUST FUND APPLIED RESEARCH
Cancer Clinical Trials Program

Competition 1

Ministerial Approval	May 1988
Total Requests Received	7
Total Requests Approved	5

Competition 2

Ministerial Approval	October 1988
Total Requests Received	2
Total Requests Approved	2

Competition 3

Ministerial Approval	March 1989
Total Requests Received	4
Total Requests Approved	2

Competition 4

Ministerial Approval	March 1990
Total Requests Received	5
Total Requests Approved	2

MEMBERS OF THE ADVISORY COMMITTEE OF RESEARCH (Appointed by the Alberta Cancer Board)

Dr. M.A. Baker
Chairman, Advisory Committee on Research
Director, Oncology Programme
Department of Hematology,
Toronto General Hospital
Toronto, Ontario

Dr. A.C. Eaves
Director, Terry Fox Laboratory
Cancer Control Agency of B.C.
Vancouver, British Columbia

Dr. P. Jolicoeur
Director, Laboratory of Molecular Biology
Clinical Research Institute of Montreal
Professor, Department of Microbiology
University of Montreal
Montreal, Quebec

Dr. T. Kinsella
Professor and Chairman
Department of Human Oncology
University of Wisconsin
Clinical Cancer Centre
Madison, Wisconsin

Dr. J. Shuster
Senior Physician and Director
Division of Clinical Immunology
Montreal General Hospital
Montreal, Quebec

Dr. J.W. Yates
Associate Director for Clinical Affairs
Roswell Park Memorial Institute
Buffalo, New York

Dr. H. van de Sande
Scientific Officer,
Advisory Committee on Research
Chairman, Medical Biochemistry
Faculty of Medicine, University of Calgary
Calgary, Alberta

The Alberta Cancer Board (ACB) has appointed the Advisory Committee on Research (ACOR) consisting of seven (one position became vacant in 1990) international oncology experts knowledgeable in various fields of cancer research and a non-voting Scientific Officer. ACOR advises the ACB in the utilization of the funds for the Research Initiative Program, the review of mechanisms for disbursement of the funds and the procedures for evaluation of the proposals. The Scientific Officer is appointed to liaise, from a scientific perspective, among researchers, ACB Administration and ACOR.

MEMBERS OF THE ALBERTA CANCER BOARD CORPORATE RESEARCH COMMITTEE

Dr. J. Berkel
Director, Epidemiology and Preventive Oncology,
Alberta Cancer Board

Dr. A. Chan
Radiation Oncologist, Tom Baker Cancer Centre

Dr. A.L.A. Fields
Director, Cross Cancer Institute
Director & Associate Professor,
Division of Medical Oncology,
Faculty of Medicine, University of Alberta

Dr. L.M. Jerry
Director, Tom Baker Cancer Centre
Professor, Faculty of Medicine,
University of Calgary

Dr. M. Paterson
Director, Molecular Genetics,
Cross Cancer Institute

Dr. S. Poppema
Director, Laboratory Medicine,
Cross Cancer Institute

Ms. K. Toll
Vice-President, Planning and Research
Alberta Cancer Board

Dr. E.A. Turley
Associate Professor, Pharmacology and
Therapeutics, University of Calgary

Dr. H. van de Sande
Scientific Officer, Advisory Committee on
Research, Alberta Cancer Board
Chairman, Medical Biochemistry
Faculty of Medicine, University of Calgary

The Corporate Research Committee, representing the Alberta scientific and clinical research cancer community, shall advise the President on policies, procedures, and plans to fulfill the provincial research mandate of the ACB.

Alberta Heritage Savings Trust Fund Applied Research Cancer – Research Initiative Program

SCHEDULE OF CASH FLOW PROJECTIONS AND EXPENDITURES 1990-91

Category	Amount Approved	Amount Expended
Administration	$ 155,831	$ 155,620
Theme-Oriented Group Projects	989,513	900,956
Multiuser and Interdisciplinary Facilities and Programs	1,298,938	1,045,897
Industry/Oncology Fellowhip	30,000	28,094
Clinical Trials	325,718	312,336
	$2,800,000	$2,442,903

NOTE: The amount approved is listed for the grants that follow in this report. There may be some variation between the amount approved and the amount expended.

Section I: Administration

Program Administrative Costs

Alberta Cancer Board
6th Floor, 9707 - 110th Street
Edmonton, Alberta

Objective:

The Alberta Cancer Board through its Advisory Committee on Research is charged with evaluating and making recommendations upon all applications for projects on cancer under the Alberta Heritage Savings Trust Fund Applied Research Cancer (AHSTF-ARC) Program. In carrying out this function, the Alberta Cancer Board incurs expenses which include travel costs for the purpose of assessing applications and the payment of honoraria to out-of-province experts in the areas of the proposed research under consideration.

The Board is also responsible for the administration of the program on a day-to-day basis.

Amount Approved (1990/91) ***$155,831***
Ministerial Approval ***March 16, 1990***

Section II:
Theme-Oriented Group Applications

Description

To be eligible for support, the research proposed should be directly related to the problem of cancer. In addition to the study of cancer as an experiment of nature, the research could deal with the application of basic findings from any discipline to the control of cancer, including advances in prevention, diagnosis and treatment, and research and development needed to apply these directly to patient care. This program is designed to stimulate interdisciplinary research between clinical and basic scientists from the cancer centres, the universities and other institutions who have developed collaborative cancer research programs. Applications from single individuals are not allowed.

Alberta Radiotherapy Dose Optimization Study (ARDOS)

Coordinator:

Dr. John W. Scrimger
Department of Medical Physics
Cross Cancer Institute
Edmonton, Alberta (RI-5[3])

Co-Applicants:

Ms. Karen Breitman
Tom Baker Cancer Centre
Dr. E. El-Khatib
Cross Cancer Institute

Objective:

This program combines the efforts of medical physicists at the Cross Cancer Institute and the Tom Baker Cancer Centre with an overall objective of improving the technical planning of radiation therapy in Alberta. One-half of all patients treated for cancer receive radiation at some time during the treatment process, and approximately one-third of all cancer deaths stem from a failure to control the loco-regional disease.

This research and development program will improve the visualization of the irradiated tissue volume and the accuracy of computed isodose lines overlaid on the digital anatomy.

Amount Approved (1990/91) ***$139,934***
Total Award ***$533,852 (4 yrs)***
Ministerial Approval ***April 3, 1987***

Nucleoside Transport Systems in Human Cells: New Strategies in Chemotherapy of Neoplastic Disease

Coordinator:

Dr. A.R.P. Paterson
Cancer Research Group
University of Alberta
Edmonton, Alberta (RI-11[2])

Co-Applicants:

Dr. Carol Cass, University of Alberta
Dr. James D. Craik, University of Alberta
Dr. Wendy Gati, University of Alberta
Dr. M.J. Robins, University of Alberta

Objective:

In the continuing search for therapeutic agents, many synthetic nucleosides and nucleoside antibiotics with antineoplastic (inhibits or prevents that development of neoplasms) and antiviral activity have been prepared, and exploration of their cytotoxic, virotoxic, and cardiovascular activities continues to be a fertile area of wide interest. This research project is concerned with the biology of nucleoside transport systems of normal and neoplastic cells by nucleoside transport inhibitors. The potent inhibitors of nucleoside transport may have applications in chemotherapy.

Amount Approved (1990/91) ***$147,000***
Total Award ***$510,090 (4 yrs)***
Ministerial Approval ***April 3, 1987***

A Project of the Radiopharmaceutical Research Evaluation Group.
The Synthesis, Preparation and Clinical Evaluation of the Role of Novel Radiopharmaceuticals in the Diagnosis, Management and Treatment of Patients with Cancer

Coordinator:
Dr. Alexander J. McEwan
Department of Nuclear Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-14[2])

Co-Applicants:
Dr. H. Richard Hooper, Cross Cancer Institute
Dr. Ronald Schmidt, Cross Cancer Institute
Mr. J.R. Scott, University of Alberta
Dr. Leonard I. Wiebe, University of Alberta
Dr. J. Allalunis-Turner, Cross Cancer Institute

Objective:

The purpose of this study is to synthesize novel compounds which have promise as radiopharmaceuticals in clinical practice. The introduction of new compounds will have direct clinical relevance to patients at the Cross Cancer Institute in terms of earlier diagnosis, more accurate staging, metastatic localization, assessment of prognosis and in the use of unsealed source therapy, where high therapeutic ratios can be obtained.

Amount Approved (1990/91)	***$91,795***
Total Award	***$315,815 (4 yrs)***
Ministerial Approval	***April 3, 1987***

Theme-Oriented Group Research Strategy Planning

Coordinator:
Dr. R. Pearcey
Department of Radiation Oncology
Cross Cancer Institute
Edmonton, Alberta (RI-37)

Objective:

This program is in support of an annual scientific research meeting where results from theme-oriented group projects may be presented and new research collaborations and the development of new theme-oriented group proposals can be discussed. This meeting provides the Advisory Committee on Research with insight into the programs funded through the Alberta Heritage Savings Trust Fund Applied Research Cancer - Research Initiative Program and the progress made to date on these projects. This program was recommended by the Advisory Committee on Research in order to implement some degree of uniformity between the protocols used by scientists and physicians in the various institutions and to avoid duplication of clinical and research programs.

Amount Approved (1990/91)	***$30,000***
Total Award	***$90,000 (3 yrs)***
Ministerial Approval	***May 5, 1988***

Mechanisms in Follicular Centre Cell Lymphoma Genesis

Coordinator:
Dr. S. Poppema
Department of Laboratory Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-42)

Co-Applicants:
Dr. M. Paterson, Cross Cancer Institute
Dr. R.G. Pearcey, Cross Cancer Institute

Objective:

The project involves the hematology components of oncology and is an example of the merge between applied research and clinical research. The investigator is studying chromosomal alterations in follicular non-Hodgkin lymphomas to be better able to predict the prognosis in these patients and select those that will benefit from treatment.

Amount Approved (1990/91) ***$53,550***
Total Award ***$113,550 (2 yrs)***
Ministerial Approval ***March 22, 1989***

Signal Transduction Mechanisms in Normal and Neoplastic Cells

Coordinator:

Dr. D.M. Waisman
Department of Medical Biochemistry
University of Calgary
Calgary, Alberta (RI-45)

Co-Applicants:

Dr. J.H. Wang, University of Calgary
Dr. D.J. Fujita, University of Calgary
Dr. J.K. Sharma, University of Calgary
Dr. W.S. Hwang, University of Calgary

Objective:

One of the most significant discoveries concerning possible mechanisms involved in causation of cancers is that certain normal cellular genes (called oncogenes) can acquire the ability to cause cancer and leukemia when altered or aberrantly expressed. Ensuing extensive studies have brought cancer research into close interaction with the signal transduction field which is concerned with the elucidation of cellular activities mediating cell response to external chemical or biological signals. This project pursues a coordinated research plan that bridges several areas of research that are important to cellular regulatory processes in normal and neoplastic cells.

Amount Approved (1990/91) ***$93,345***
Total Award ***$183,345 (2 yrs)***
Ministerial Approval ***March 22, 1989***

The Natural History of CIN I Lesions by Human Papillomavirus Type

Coordinator:

Dr. Marie Duggan
Dept. of Pathology & Obstetrics & Gynecology
Foothills Hospital
Calgary, Alberta (RI-48)

Co-Applicants:

Dr. Masafumi Inoue, University of Calgary
Ms. S. Elizabeth McGregor, Tom Baker Cancer Centre
Dr. Gavin C.E. Stuart, Tom Baker Cancer Centre
Dr. Alexandra Schepansky, University of Calgary
Dr. R. Louis H. Honore, University of Calgary

Objective:

As there is some evidence that CIN I lesions harboring HPV 16 have a greater propensity to progress to a higher grade dysplasia, it is the aim of this project to determine: 1) if HPV type 6, 11, 16, 18, 31, 33 or 35, or combinations thereof are predictive of the ability of CIN I +/- HPV to progress to a higher grade dysplasia, persist unchanged or regress spontaneously; 2) the effect of key risk fators on the natural history of CIN I +/- HPV; and 3) the interrelationship of specific HPV types and key risk factors in predicting the natural history of CIN I +/- HPV.

Amount Approved (1990/91) ***$42,000***
Total Award ***$42,000 (1 yr)***
Ministerial Approval ***March 16, 1990***

Colon Cancer Prevention

Coordinator:
Dr. J. Berkel
Div. of Epidemiology & Preventive Oncology
Alberta Cancer Board
Edmonton, Alberta (RI-48)

Co-Applicants:
Dr. E. Wiens, Cross Cancer Institute
Dr. L. Sutherland, University of Calgary
Mr. J. Hanson, Cross Cancer Institute

Objective:

Prevention of disease is conditional upon the identification of causal risk factors (after which prevention of exposure to identified risk factors leads to reduced incidence) and/or upon the knowledge of the natural history of the disease. Knowledge of the natural history will allow for intervention in the natural history to prevent the development of full blown disease. This proposal is designed to specifically address these two main issues in relation to colon cancer.

Amount Approved (1990/91) ***$97,000***
Total Award ***$97,000 (1 yr)***
Ministerial Approval ***March 16, 1990***

Surface Phenotypes and Cloning of Tumor Infiltrating Lymphocytes in Leukoderma of Dysplastic Nevus Syndrome

Coordinator:
Dr. K. Jimbow
Division of Dermatology and Cutaneous Sciences
University of Alberta
Edmonton, Alberta (RI-50)

Co-Applicants:
Dr. S. Poppema, Cross Cancer Institute

Objective:

The objective of this proposal is to characterize the nature of LEUKODERMA and the role of tumor infiltrating lymphocytes (TIL) in DMN of DNS patients. In depth study of DMN-leukoderma phenomena in familial DNS patients will lead to a better understanding of the mechanism of tumor regression and to an increased potential for applying this knowledge to clinical oncology.

Amount Approved (1990/91) ***$96,089***
Total Award ***$96,089 (1 yr)***
Ministerial Approval ***March 16, 1990***

Cancer and Sexuality

Coordinator:
Dr. John W. Robinson
Psycholsocial Resources
Tom Baker Cancer Centre
Calgary, Alberta (RI-54)

Co-Applicants:
Dr. Henderikus J. Stam, University of Calgary
Ms. Carol Scott, University of Calgary

Objective:

This project examines the relationship between sexual dysfunction and psychological problems, in gynecological cancer patients at four assessment periods over a one year duration of diagnosis and treatment.

Amount Approved (1990/91) ***$13,800***
Total Award ***$13,800 (1 yr)***
Ministerial Approval ***March 16, 1990***

Mechanisms of Cellular Adhesion in Acute Lymphoblastic Leukemia

Coordinator:
Dr. A. Shaw
Department of Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-58)

Co-Applicants:
Dr. S. Poppema, Cross Cancer Institute

Objective:

To identify molecules mediating and regulating the cell-cell adhesion of pre-B cells, their role in B cell ontogeny, and how that role is altered by leukemogenesis.

Amount Approved (1990/91) ***$100,000***
Total Award ***$100,000 (1 yr)***
Ministerial Approval ***March 16, 1990***

A Comparison of Cancer Prevention Strategies: Personalized Advice Delivered by Letter or Electronic Media

Coordinator:
Ms. Judith Birdsell
Division of Epidemiology and Preventive Oncology
Alberta Cancer Board
Edmonton, Alberta (RI-60)

Co-Applicants:
Dr. Sharon Campbell, Alberta Cancer Board
Dr. Paul Taenzer, Tom Baker Cancer Centre
Dr. Ivan H. Zendel, Foothills Hospital
Ms. Elizabeth McGregor, Alberta Cancer Board
Dr. Johanes Berkel, Alberta Cancer Board
Dr. Barry D. Bultz, Tom Baker Cancer Centre

Objective:

The intent of this study is to establish the relative efficacies of Cancer Me?? and delivery of personal risk reduction information through questionnaire and delayed information letter. If shown to be effective, these delivery modes may have an important role in future cancer prevention efforts.

Amount Approved (1990/91) ***$20,000***
Total Award ***$20,000 (1 yr)***
Ministerial Approval ***March 16, 1990***

Provincial Breast Screening Program

Coordinator:
Dr. Heather Bryant
Alberta Program for the Early Detection of Breast Cancer - Screen Test

Objective:

The purpose of this proposal is to establish a province-wide research data base so that ongoing evaluation research on the cost benefit of breast screening for Alberta Cancer can occur.

Amount Approved (1990/91) ***$65,000***
Total Award ***$65,000 (1 yr)***
Ministerial Approval ***March 16, 1990***

Section III: Multiuser and Interdisciplinary Facilities and Programs

Description:

Infrastructure support (shared resources) is available to a variety of disciplines in which there is evidence of a high degree of interdisciplinary coordination, interaction, and cooperation among cancer center and university members. Infrastructure support should increase efficiency by providing support for shared equipment and centralized multi-user facilities. Examples of infrastructure support would include animal facilities, nuclear magnetic resonance facilities, cell sorting facilities and laboratory glassware washing.

The funding for the Institutional Research Programs are in support of developmental research and pilot projects in the Cancer Centres in Alberta. This funding is to be used to support technicians, research assistants, and supplies for the development of research which would evolve into theme-oriented group programs.

Operation of Flow Cytometry Laboratory

Coordinator:

Dr. Linda Pilarski
Department of Immunology
University of Alberta
Edmonton, Alberta (RI-9[2])

Co-Applicants:

Dr. Carol C. Cass, University of Alberta
Dr. Larry J. Guilbert, University of Alberta
Dr. J.F. Henderson, University of Alberta
Dr. Feldzgeritta Pazderka, University of Alberta
Dr. Andrew Robert Turner, University of Alberta
Dr. L.E. McGann, University of Alberta

Objective:

The flow cytometry facility is in the Faculty of Medicine at the University of Alberta and consists of 2 Coulter Epics V units. The day to day operation of the flow cytometers is carried out by two technologists who have considerable experience with flow cytometry. Some of the research projects requiring the use of the flow cytometer include:

a) the biological and biochemical effects of a variety of growth-inhibitory drugs and the development of new strategies of combination chemotherapy;
b) the biochemical bases of clinical drug resistance inhuman multiple myeloma and acute nonlymphocytic leukemia; defining the role of known oncogenes in the etiology of myeloma; and developing new strategies of combination chemotherapy for nonresponsive human tumors;
c) the determination of conditions required for the successful cryopreservation of cells and tissues; and,
d) the development of new methods of purging of human bone marrow of tumor cells prior to autologous marrow transplantation.

Amount Approved (1990/91)	***$94,985***
Total Award	***$300,309 (4 yrs)***
Ministerial Approval	***April 3, 1987***

Health Sciences Centre Flow Cytometry Facility

Coordinator:

Dr. Rene Lafreniere
Division of Surgical Oncology
University of Calgary
Calgary, Alberta (RI-10[2])

Co-Applicants:

Dr. Dean Befus, University of Calgary
Dr. Ronald McGarry, University of Calgary
Dr. Walley Temple, Tom Baker Cancer Centre
Dr. John Reynolds, University of Calgary
Dr. Martin Jerry, Tom Baker Cancer Centre
Dr. Marvin Fritzler, University of Calgary
Dr. N.S. Schachar, University of Calgary
Dr. Chiaki Shiozawa, University of Calgary
Dr. Francis Green, University of Calgary

Objective:

This facility is located in the space of Oncology Research Group of the Faculty of Medicine at the University of Calgary. The facility can perform several analysis, each one giving new information on cell size, cell surface, DNA, RNA, and cell type. Most of the work performed at this time involves oncology and immunology users belonging to one or more of the following groups: Oncology Research Group, Pediatric Oncology Research Group, Biological Therapeutics Research Group and the Gastrointestinal Research Group. Some of the research projects requiring the use of the flow cytometer include:

a) treatment of leukemias and lymphomas in an attempt to identify cellular phenotypes of such cells thus leading to a more accurate diagnosis and treatment of patients;
b) bone marrow cells are analyzed for DNA and RNA contents and cell surface phenotypes at various phases of differentiation;
c) evaluating the effects of Recombinant Interleukin-2 and Lymphokine Activated Killer (LAK) cells on bone marrow differentiation both in the murine and human systems;
d) to look at the DNA expression in cancer cells and to develop techniques of cellular analysis with paraffin embedded tissue sections comparing fixed cells to fresh cells in terms of DNA and RNA expression of normal cells, premalignant cells and cancer cells;
e) ongoing studies with monoclonal antibodies to melanoma antigens; and
f) research involving tumor infiltrating lymphocytes obtained both from murine and human tumors and phenotypes of these cells and post exposure to biological response modifiers.

Amount Approved (1990/91) ***$84,000***
Total Award ***$274,000 (4 yrs)***
Ministerial Approval ***April 3, 1987***

Molecular Genetics and Carcinogenesis

Coordinator:
Dr. Malcolm Paterson
Department of Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-12[2])

Co-Applicants:
Dr. Rufus Day, Cross Cancer Institute
Dr. Roseline Godbout, Cross Cancer Institute
Dr. Paul Grundy, Cross Cancer Institute

Objective:

The overall aim of the MGC Program is to clarify hereditary determinants in the cause and course of human neoplasia, focusing on molecular mechanisms whereby altered structure or function of cancer-associated genes, proto-oncogenes and tumor-suppressor genes, may predispose the host subject to malignancy. The experimental strategy entails a multidisciplinary and in-depth laboratory study of rare genetic or familial cancer-prone conditions as well as tumor material from cancer patients so as to derive new concepts and general principles of the molecular biology of cancer.

Amount Approved (1990/91) ***$210,000***
Total Award ***$575,505 (4 yrs)***
Ministerial Approval ***April 3, 1987***

Metastasis Unit: Bioregulators of Metastasis

Coordinator:
Dr. Dylan Edwards
Oncology Research Group
University of Calgary
Calgary, Alberta (RI-25[2])

Co-Applicants:
Dr. Eva Turley, University of Calgary
Dr. F. van der Hoorn, University of Calgary

Objective:

The focus of the Metastatis Unit will be to investigate the role of extracellular matrix in perpetuating the metastatic

(transfer of cells) cascade. This focus is particularly relevant in view of accumulating evidence for the critical role that extracellular matrix with oncogene products. Extracellular matrix, in particular collagen, nectin proteins and proteoglycans have been strongly implicated in regulating biological functions relevant to the metastatic process.

Amount Approved (1990/91) ***$78,750***
Total Award ***$310,340 (4 yrs)***
Ministerial Approval ***April 3, 1987***

In-vivo Applications of NMR Spectroscopy and Imaging to Cancer Research

Coordinator:

Dr. Peter Allen
Department of Applied Science in Medicine
University of Alberta
Edmonton, Alberta (RI-19[2])

Co-Applicants:

Dr. John Akabutu, University of Alberta, Cross Cancer Institute
Dr. K.T. Ciesielski, University of Alberta
Dr. D.S. Ernst, Cross Cancer Institute
Dr. Alan J. Franko, Cross Cancer Institute
Dr. C.C. Hanstock, University of Alberta
Dr. D.G. Hughes, University of Alberta
Dr. F. Jackson, Cross Cancer Institute
Dr. B.W. Krushelnyky, University of Alberta
Dr. R.N. Ludwig, University of Alberta
Dr. Alexander J. McEwan, Cross Cancer Institute
Dr. J.D.S. McKean, University of Alberta
Dr. J.D.R. Miller, University of Alberta
Dr. A.H.G. Paterson, Cross Cancer Institute
Dr. R. Pearcey, Cross Cancer Institute
Dr. A. Schepansky, Cross Cancer Institute
Mr. R. Schmidt, Cross Cancer Institute
Dr. R.E. Snyder, University of Alberta
Dr. Raul Urtasun, Cross Cancer Institute
Dr. L.I. Wiebe, University of Alberta

Objective:

The broad aim of the Nuclear Magnetic Resonance (NMR) Facility, located at the University of Alberta, is to become a centre of intense activity in the application of the NMR technique to those areas of medical research which are consistent with the clinical strengths of the local community. The following is a list of some of the research projects requiring the use of the NMR facility.

a) Intercerebral Tumor and Peritumor Metabolism and pH: Effects of Systemic Factors.
b) Generation of Standard Curves with Related 31p Spectra of Animal Tissue with PDT Generated Hypoxic Fractions.
c) Correlation of 31p Spectroscopically Measured Energy Metabolism with Histology, Hypoxia Markers and Blood Flow in Walker Sarcoma of the Kidney.
d) An Imaging and Spectroscopic Investigation of Intracerebrally Implanted Tumour Metabolism.
e) Development of Predictive Assays of Tumour Metastatic Potential and of Efficacies of Various Treatments of Metastatic Disease.

Amount Approved (1990/91) ***$170,548***
Total Award ***$849,768 (4 yrs)***
Ministerial Approval ***April 3, 1987***

Institutional Research Program - Tom Baker Cancer Centre

Coordinator:

Dr. L.M. Jerry
Director
Tom Baker Cancer Centre
Calgary, Alberta

Objective:

To support the development of new research interactions between clinical cancer facilities and applied cancer research facilities.

Amount Approved (1990/91) ***$200,000***
Total Award ***$210,000 (2 yrs)***
Ministerial Approval ***March 22, 1989***

Institutional Research Program - Cross Cancer Institute

Coordinator:
Dr. A.L.A. Fields
Director
Cross Cancer Institute
Edmonton, Alberta

Objective:

To support the development of new research interactions between clinical cancer facilities and applied cancer research facilities.

Amount Approved (1990/91)	***$150,000***
Total Award	***$150,000 (1 yr)***
Ministerial Approval	***March 16, 1990***

Tumor Radiosensitivity and its Modification by Oxygen

Coordinator:
Dr. M. J. Allalunis-Turner
Department of Radiobiology
Cross Cancer Institute
Edmonton, Alberta (RI-53)

Co-Applicants:
Dr. J. D. Chapman, Cross Cancer Institute
Dr. G. G. Miller, Cross Cancer Institute
Dr. M. Weinfeld, Cross Cancer Institute
Dr. R. C. Urtasun, Cross Cancer Institute

Objective:

Funding for this program will provide core support for the Cross Cancer Institute Radiobiology Program to keep the animal facilities and laboratories functioning. Some of the projects being conducted for which these facilities are being utilized include:

a) Correlation of Radiation-Induced Base Damage with Cellular Radiosensitivity.
b) Initial Damage and Repair Kinetics in DNA Lesions in Human Tumor Cell Lines After Irradiation.
c) Prediction of Radiation Response in Patients with Gynecological Malignancies.
d) Fluorescent Marker for Cellular Hypoxia.
e) Synthesis, Preclinical and Clinical Testing of Gamma-Labeled Markers of Tumor Hypoxia.

Amount Approved (1990/91)	***$280,000***
Total Award	***$280,000 (1 yr)***
Ministerial Approval	***March 16, 1990***

Technology Transfer/Patents

Coordinator:
Ms. Kerry Toll
Vice-President, Planning & Research
Alberta Cancer Board
Edmonton, Alberta

Objective:

This funding assists in the protection of intellectual property (eg. patents) and the transfer of technology from the clinical facility to industry or from industry to the clinical facility.

Amount Approved (1990/91)	***$30,655***
Total Award	***$30,655 (1 yr)***
Ministerial Approval	***March 16, 1990***

Section IV:
Industry/Oncology Fellowship

Description:

Industry/Oncology Fellowship is granted to individuals who are carrying out applied cancer research with funding contributions from industry.

Coordinator:
Alberta Cancer Board
6th Floor, 9707 - 110 Street
Edmonton, Alberta

Objective:

Industry/Oncology Fellowship is granted to individuals who are carrying out applied cancer research with funding contributions from industry.

Recipient:
Dr. Eleanor Mackie
Oncology Research Group
University of Calgary
Institutional Sponsor: Dr. L. M. Jerry
Industry Sponsor:
Biomira, Edmonton, Alberta

Recipient:
Dr. Nabil W. Fahmy
Department of Medicine
Cross Cancer Institute
Institutional Sponsor: Dr. A. Shaw
Industry Sponsor:
Biomira, Edmonton, Alberta

Amount Approved (1990/91)	***$30,000***
Total Award	***$30,000 (1 yr)***
Ministerial Approval	***March 16, 1990***

Section V: Clinical Trials

Description

One of the major purposes of the Cancer Program is to foster and support the development of multidisciplinary programs in clinical research. The Alberta Heritage Savings Trust Fund Applied Research-Cancer Research Initiative Program provides core support for this purpose. The core support provides funding for selected personnel (ie. research nurses and data managers) and for the operation of centralized resources and services. Core support should facilitate creative interaction for clinical research activities and should increase efficiency by providing support for shared resources.

Clinical Trials Unit - Cross Cancer Institute

Coordinator:
Dr. A.L.A. Fields
Director
Cross Cancer Institute

Objective:

The Clinical Trials Unit at the Cross Cancer Institute includes funding for core support of clinical trials. This funding is used to support data coordinators to facilitate participation in national and international group studies.

The following national clinical trials were supported during 1990/91:

a) Pediatric Oncology Group Clinical Trials;
b) Radiation Therapy Oncology Group Clinical Trials;
c) National Cancer Institute of Canada Clinical Trials; and
d) National Surgical Adjuvant Breast Program Clinical Trials.

Amount Approved (1990/91) ***$122,209***
Ministerial Approval ***April 3, 1987***

Clinical Trials Unit - Tom Baker Cancer Centre

Coordinator:
Dr. L.M. Jerry
Director
Tom Baker Cancer Centre

Objective:

The Clinical Trials Unit at the Tom Baker Cancer Centre includes funding for core support of clinical trials. This funding is used to support data coordinators to facilitate participation in national and international group studies.

The following national clinical trials were supported during 1990/91:

a) Pediatric Oncology Group Clinical Trials;
b) Radiation Therapy Oncology Group Clinical Trials;
c) National Cancer Institute of Canada Clinical Trials; and
d) National Surgical Adjuvant Breast Program Clinical Trials.

Amount Approved (1990/91) ***$85,000***
Ministerial Approval ***April 3, 1987***

Clinical Trial - Brain Tumor Research Program

Coordinator:
Dr. R.C. Urtasun
Department of Radiation Oncology
Cross Cancer Institute
Edmonton, Alberta (CT-3)

Co-Applicants:
Dr. D. Fulton, Cross Cancer Institute
Dr. P. Allen, University of Alberta
Dr. R. Day, Cross Cancer Institute
Dr. M.J. Allalunis-Turner, Cross Cancer Institute
Dr. J.D. McKean, University of Alberta
Dr. B. Mielke, University of Alberta
Dr. A.J.B. McEwan, Cross Cancer Institute
Dr. J.D.R. Miller, University of Alberta
Dr. A.R. Turner, Cross Cancer Institute

Objective:

Clinical research in malignant brain tumors is conducted on a wide basis by this research group with the objectives of: (a) understanding the basis of tumor resistance to radiation and chemotherapy; (b) improving the therapeutic ratio by either the use of unconventional fractionation regimens or the use of chemical modifiers of radiation response; and (c) understanding and follow-

ing by noninvasive methods the acute and late CNS radiation effects.

The following clinical trials are a part of the Brain Tumor Research Program.

a) Hyperfractionation in malignant glioma
b) Iododeoxyuridine (IUdR) and radiotherapy treatment of primary malignant brain tumors
c) Mer phenotype glutathione and inherent radiosensitivity as predictors of tumor treatment response in patients with malignant glioma
d) Magnetic resonance spectroscopy to assess radiation damage in irradiated CNS

Amount Approved (1990/91) ***$47,249***
Total Award ***$100,934 (3 yrs)***
Ministerial Approval ***May 5, 1988***

Myeloma and Small Cell Lung Cancer

Coordinator:
Dr. R.C. Urtasun
Department of Radiation Oncology
Cross Cancer Institute
Edmonton, Alberta (CT-4)

Co-Applicants:
Dr. A.R. Belch, Cross Cancer Institute
Dr. M. Palmer, Cross Cancer Institute

Objective:

The treatment of multiple myeloma remains unsatisfactory. Conventional chemotherapy with oral melphalan and prednisone, which was established almost two decades ago, produces objective responses in approximately 50% of myeloma patients and a median survival of 30 months. The major emphasis in myeloma treatment has been on employing various drug combinations to increase the overall plasma cell kill, as shown by the M-protein decrement in the serum. New investigational agents such as interferon have also been disappointing in myeloma. It is readily apparent that most myeloma patients initially treated with conventional chemotherapy only achieve varying degrees of a partial response. If new more agressive first-line therapies for myeloma are to be evaluated, there must be a means of quantifying the increased serum M-protein decrement produced by these therapies. This clinical program proposes to substantiate the idea of more intensive therapy employing high dose steroids.

Amount Approved (1990/91) ***$35,339***
Total Award ***$116,716 (3 yrs)***
Ministerial Approval ***May 5, 1988***

Clinical Trial - Multi-Centre Trial of Strontium 89 Therapy

Coordinator:
Dr. A.J. McEwan
Department of Nuclear Medicine
Cross Cancer Institute
Edmonton, Alberta (CT-11)

Co-Applicants:
Dr. J.E. Pedersen, Cross Cancer Institute
Dr. C. deMetz, Cross Cancer Institute
Mr. R. Sloboda, Cross Cancer Institute

Objective:

The aims of this clinical trial are to:

a) document the toxicity of Strontium-89 in patients with prostate cancer metastatis to bone;
b) study the delay of progression of existing asymptomatic metastases as a function of treatment delivered;
c) evaluate the analgesic efficacy of intravenous Strontium-89 plus local field radiation as compared with local field radiation alone;
d) document the morbidity of Strontium-89 added to regular fractionated local field radiotherapy; and
e) compare survival in patients treated with adjuvant Strontium-89 with that of patients receiving placebo.

Amount Approved (1990/91) ***$35,921***
Total Award ***$70,131 (2 yrs)***
Ministerial Approval ***March 22, 1989***

Section VI:
Research Projects Completed
as at March 31, 1991

Developmental Regulation of and by Cellular Oncogenes

Coordinator:
Dr. Michael M. Bentley
Department of Biology
University of Calgary
Calgary, Alberta (RI-2)

Co-Applicants:
Dr. Leon Browder, University of Calgary
Dr. R.N. Johnston, University of Calgary

Total Award: *$50,000*

Monoclonal Antibodies Against Defined Synthetic Carbohydrate Antigens: Cancer Detection and Prognostic Evaluation

Coordinator:
Dr. A. Robert Turner
Department of Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-27)

Co-Applicants:
Dr. James A. Russell, Tom Baker Cancer Centre
Dr. Anna Janowska-Wieczorek, Cross Cancer Institute
Dr. Locksley McGann, University of Alberta
Dr. Linda Pilarski, University of Alberta
Dr. B. Houwen, University of Calgary
Dr. John J. Akabutu, Cross Cancer Institute
Dr. Andrew Belch, Cross Cancer Institute
Dr. Abdul Khaliq, Cross Cancer Institute
Dr. M.J. Mant, University of Alberta

Total Award:$80,000

Northern Alberta Neuro-Oncology Program

Coordinator:
Dr. Raul Urtasun
Department of Radiation Oncology
Cross Cancer Institute
Edmonton, Alberta (RI-16(2))

Co-Applicants:
Dr. Dorcas Fulton, Cross Cancer Institute
Dr. J. Turner, Cross Cancer Institute

Total Award: *$97,000*

Improved Diagnostic and Therapeutic Approaches to Opportunistic Infections of Patients with Malignancy

Coordinator:
Dr. L.E. Bryan
Dept. of Microbiology & Infectious Diseases
University of Calgary
Calgary, Alberta (RI-23)

Co-Applicants:
Dr. Anthony Schryvers, University of Calgary
Dr. Michael John Gill, University of Calgary
Dr. James A. Russell, University of Calgary
Dr. P. Sokol, University of Calgary

Total Award: *$162,350*

DNA Repair in Human Fetal Tissue and Hydatidiform Mole

Coordinator:
Dr. Rufus Day
Department of Molecular Genetics
Cross Cancer Institute
Edmonton, Alberta (RI-34)

Co-Applicants:
Dr. L. Honore, University of Alberta

Total Award: *$30,000*

Quantitative Fluorescnece Image Analysis Facility

Coordinator:
Dr. Maurice J. Anderson
Neurosciences Research Group
University of Calgary
Calgary, Alberta (RI-26)

Co-Applicants:
Dr. Eva Turley, University of Calgary
Dr. Morley D. Hollenberg, University of Calgary
Dr. Daniel A. Roncari, University of Calgary

Total Award: *$81,675*

Clinical Trial - Development of Antibody-Directed Isotope Scanning for Regional and Systemic Metastatic Melanoma

Coordinator:
Dr. W.J. Temple
Department of Surgery
Tom Baker Cancer Centre
Calgary, Alberta (CT-1)

Co-Applicants:
Dr. L.M. Jerry, Tom Baker Cancer Centre
Dr. R. Lafreniere, University of Calgary
Dr. G.D. MacLean, Cross Cancer Institute
Dr. R. Kloiber, University of Calgary
Dr. S.J. Demetrick, University of Calgary
Dr. L.K. Sikora, University of Calgary

Total Award: *$48,000*

Administration Program Evaluation

As required by the Government under the terms of the AHSTF-ARC Research Initiative Program, an external group of experts evaluated the program in the spring of 1989. The Evaluation Team comprised of the Chairman, Dr. Phil Gold, Professor, McGill University, Dr. Robert Taub, Professor of Medicine, Columbia University, and Dr. George Santos, Professor, The Johns Hopkins University who met with representatives of the scientific community, the Alberta Cancer Board, the University of Calgary, the University of Alberta, the Alberta Heritage Foundation for Medical Research and the Government of Alberta. The Evaluation Team recommended changes to the scope, funding and academic organizational relationships of the Applied Cancer Research Program to promote further the substantial progress in cancer research in Alberta made to-date under the AHSTF-ARC Program.

Total Award *$30,000*

Strategies for Improving Combination Chemotherapy of Human Tumors

Coordinator:
Dr. J.F. Henderson
Cancer Research Group
University of Alberta
Edmonton, Alberta (RI-7)

Co-Applicants:
Dr. L. Brox, University of Alberta
Dr. Andrew Belch, Cross Cancer Institute
Dr. A.L.A. Fields, Cross Cancer Institute

Objective:

This research project proposes to devise new strategies of combination chemotherapy for the treatment of human tumor, and to evaluate them at both biochemical and biological levels.

Total Award *$152,152*

Predictive Assays of Tumor Treatment Response

Coordinator:
Dr. Donald Chapman
Department of Radiobiology
Cross Cancer Institute
Edmonton, Alberta (RI-15)

Co-Applicants:
Dr. M. Joan Allalunis-Turner, Cross Cancer Institute
Dr. R.C. Urtasun, Cross Cancer Institute
Dr. L.I. Wiebe, University of Alberta
Dr. G.G. Miller, Cross Cancer Institute

Objective:

The object of this proposal is to research and develop assays performed on tumor cells, ultimately from individual cancer patients, for predicting the treatment response of individual tumors. The term "predictive assays" has come to refer to several different measurements of specific characteristics of individual tumors or cells from individual tumors which can have prognostic value for treatment response. Tumor size, histological type, clinical presentation and hemoglobin level have proven clinical value in predicting tumor response to radiation treatment, at least for some categories of tumors.

Total Award ***$830,981***

In-vivo Applications of NMR Spectroscopy to Metabolism in Tumor Tissue

Coordinator:

Dr. Peter Allen
Department of Applied Sciences in Medicine
University of Alberta
Edmonton, Alberta (RI-18(2))

Co-Applicants:

Dr. Donald Boisvert, University of Alberta
Dr. Allan Franko, Cross Cancer Institute
Dr. John D. McKean, University of Alberta
Dr. Raul Urtasun, Cross Cancer Institute

Objective:

The purpose of the research project is to use in-vivo (within the living body) Nuclear Magnetic Resonance (NMR) spectroscopy to derive local physiological information, non-invasively, on tumour or peritumor tissue as a function of some induced stress and to correlate these findings with accepted, standard, histopathological techniques.

Total Award ***$160,627***

Cell Regulation Group: Structure, Function and Gene Regulation of the Tumor Associated Signal-Generating Glycoprotein CD9

Coordinator:

Dr. Andrew Shaw
Department of Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-22)

Co-Applicant:

Dr. Robert C. Bleakley, University of Alberta

Objective:

The objectives of this research project are to: a) understand how stimulation of the structurally novel cell surface glycoprotein CD9 inhibits T lymphocyte proliferation, and to determine whether under appropriate stimulation CD9 can inhibit the proliferation of other tissues including hematological malignancies; b) to understand how the CD9 gene is regulated at the transcriptional level during T cell activation, and in hematological malignancy; and c) to understand how the gene is activated during proliferation. By comparing the transcriptional activity of the gene in normal, and malignant cells one should be able to determine whether there are differences attributable to the malignant state.

Total Award ***$231,921***

Analysis of Melanosomal Markers in Malignant Melanoma and its Precursors

Coordinator:

Dr. Kowichi Jimbow
Div. of Dermatology and Cutaneous Sciences, University of Alberta
Edmonton, Alberta (RI-32)

Co-Applicants:

Dr. V. Paetkau, University of Alberta
Dr. M. Jimbow, University of Alberta

Objective:

The primary objective of this proposal is to provide improved diagnostic procedures for malignant melanoma, a particularly difficult challenge to scientists and physicians. Early intervention, at the preinvasive stage, i.e. melanoma in situ or dysplastic melanocytic nevus (DMN) is critical to effective treatment. Melanocytes possess unique biological properties, related to the production of melanin in the melanosome.

Total Award ***$158,267***

Molecular Probes for Analysis of Prognosis in Breast Cancer

Coordinator:

Dr. A.H.G. Paterson
Department of Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-35)

Co-Applicants:

Dr. A. Lees, Cross Cancer Institute
Dr. M. Paterson, University of Alberta
Dr. B. Krause, Cross Cancer InstituteDr. A.J. McEwan, Cross Cancer Institute
Mr. J. Hanson, Cross Cancer Institute
Dr. W.A. McBlain, University of Alberta
Dr. John Danyluk, University of Alberta
Dr. B. Willan, Cross Cancer Institute

Objective:

The objective of this study is to establish whether HER-2/neu activation, together with detection of metastases in vivo using radiolabelled MAbs and estradiol, will enhance our ability to identify subgroups of patients with high-risk breast cancer, for this may have relevance in defining selection criteria for future clinical trials of adjuvant therapy. The proposed research may eventually lead to improved survival by the appropriate selection of cytotoxic therapy for those at high risk of recurrence irrespective of node or hormone receptor status.

Total Award ***$170,078***

The Evaluation of Tumor Treatment Response by Positron Emission Tomography

Coordinator:

Dr. A.J. McEwan
Department of Nuclear Medicine
Cross Cancer Institute
Edmonton, Alberta (RI-44)

Co-Applicants:

Dr. L.I. Wiebe, Cross Cancer Institute
Dr. H.R. Hooper, Cross Cancer Institute
Dr. R.G. Pearcey, Cross Cancer Institute
Dr. R. Urtasun, Cross Cancer Institute
Dr. A.W. Lees, Cross Cancer Institute
Mr. S. McQuarrie, Cross Cancer Institute
Mr. R. Sloboda, Cross Cancer Institute
Mr. R. Schmidt, Cross Cancer Institute
Mr. J. Scott, University of Alberta

Objective:

The fundamental aim of this research program is to demonstrate the ability of Positron Emission Tomography (PET) investigations to contribute to the management of patients with cancer by improving our ability to predict treatment response, monitor response to therapy, and assess the effects of therapy on tumor and normal tissue.

Total Award ***$60,443***

Central Research Support Services in the McEachern Laboratory

Coordinator:

Dr. Alan R.P. Paterson
Cancer Research Group
McEachern Laboratory
University of Alberta
Edmonton, Alberta (RI-6)

Co-Applicants:

Dr. Larry W. Brox, University of Alberta
Dr. Carol C. Cass, University of Alberta
Dr. J.F. Henderson, University of Alberta

Objective:

This application concerns the cost of the office and central research support operations ("core" or "infrastructure" operations) of the McEachern Laboratory. Central research support operations in this context comprise glassware washing, animal care and operation of a suite for small animal experiments, maintenance of shared major equipment, water purification, operation of a central cell culture facility and support of cell culture operations, including glassware cleaning, sterilization and media preparation. Some of the research projects which share these resources are:

a) multiple Myeloma: Etiology, Biochemical Pharmacology and Therapy;
b) biochemical Studies of Multiple Myeloma;
c) biochemical Mechanisms of Resistance in Multiple Myeloma and Acute Nonlymphocytic Leukemia;
d) cellular Pharmacology Anti-Cancer Drugs;
e) cellular Pharmacology of Vinca Alkaloids;
f) autologous Bone Marrow Transplantation;
g) biochemical Bases of Drug Action;
h) chemotherapy with Nucleoside Analogs: Modulation with Inhibitors of Nucleoside Transport; and
i) interactions of Nucleoside Transport Inhibitors with Tumor Cell Membranes: Fundamental Mechanisms and Therapeutic Applications.

Total Award ***$116,470***

Radiobiology Research Program

Coordinator:
Dr. J.D. Chapman
Department of Radiobiology
Cross Cancer Institute
Edmonton, Alberta (RI-38)

Objective:

Funding for this program will provide core support for the Cross Cancer Institute Radiobiology Program basically to keep the animal facilities and laboratories functioning. Individuals and groups must apply for funding from other sources to support their specific projects.

Total Award ***$584,156***

Epidemiology - Core Support

Coordinator:
Dr. J. Berkel
Div. Epidemiology and Preventive Oncology
Alberta Cancer Board

Objective:

ACOR has emphasized the need to expand cancer epidemiology and prevention research in Alberta, with a special emphasis on the use of data collected through the Alberta Cancer Registry. To this end, several new initiatives in cancer epidemiology and prevention were funded, including:

a) survival-analysis/cancer incidence mapping of Alberta from 1964 to 1988;
b) the evaluation of "Cancer-Me", an interactive public cancer prevention education computer program;
c) impact of prevention on cancer incidence in Alberta; and
d) a collaborative case-control study with the University of Calgary/ China on breast cancer.

Total Award ***$100,000***

Positron Emission Tomography

Coordinator:
Dr. A.J. McEwan
Department of Nuclear Medicine
Cross Cancer Institute
Edmonton, Alberta

Objective:

To promote the development of research using Positron Emission Tomography.

Total Award *$20,433*

Southern Alberta Cancer Research Floor

Coordinator:
Alberta Cancer Board
6th Floor, 9707 - 110 Street
Edmonton, Alberta

Objective:

To facilitate the establishment of a multidisciplinary cancer research program for southern Alberta based in the new Alberta Heritage Foundation for Medical Research Building on the Foothills Hospital/ University of Calgary site.

Total Award *$152,872*

Evaluation of the Utility of Serum CA 19-9 Levels in Patients with Unresectable Adenocarcinoma

Coordinator:
Dr. Alfred Wong
Department of Medicine
Tom Baker Cancer Centre
Calgary, Alberta (CT-6)

Co-Applicants:
Dr. A. Chan, Tom Baker Cancer Centre
Dr. K. Arthur, Tom Baker Cancer Centre

Objective:

To conduct a Phase II study to evaluate (a) the therapeutic efficacy on Tamoxifen therapy in pancreatic adenocarcinoma using the serial measurement of tumour marker CA 19-9 levels and patients survival time from diagnosis to be the end point of evaluation, and (b) the utility of serial measurements of serum CA 19-9 as an indicator for survival of patients with unresectable pancreatic adenocarcinoma treated with Tamoxifen.

Total Award *$10,000*

A Phase II Study to Evaluate the Toxicity and Efficacy of Concurrent Cisplatinum and Radiation Therapy in the Treatment of Patients with Locally Advanced Squamous Cell Carcinoma of the Cervix

Coordinator:
Dr. Gavin Stuart
Department of Gynecology
Tom Baker Cancer Centre
Calgary, Alberta (CT-7)

Co-Applicants:
Dr. R.G. Pearcey, Cross Cancer Institute
Dr. G.D. MacLean, Cross Cancer Institute
Dr. L.B. Brown, Cross Cancer Institute
Dr. J. Nation, Tom Baker Cancer Centre
Dr. K. Arthur, Tom Baker Cancer Centre

Objective:

To evaluate the local/regional control rates in patients treated by radiation therapy with concurrent cisplatin in patients with poor prognosis squamous cancer of the cervix by assessing relapse rate and time of relapse of complete responders. To evaluate the disease-free and actual survival in such patients. To evaluate the early and late toxicity of such treatment.

Total Award *$19,538*

Clinical Trial - To Measure the Dose Modifying Effect of Cisplatinum on Radiation Reactions

Coordinator:

Dr. R.G. Pearcey
Department of Radiation Oncology
Cross Cancer Institute
Edmonton, Alberta (CT-8)

Co-Applicants:

Dr. J.D. Chapman, Cross Cancer Institute

Objective:

The objectives of this clinical trial are to determine if the combination of cis-platinum and radiotherapy lead to enhanced normal tissue reactions in humans which can be quantitatively measured. To determine the best timing of drug and radiation administration which result in the smallest tissue reaction. This is a phase I pilot study to measure potential toxicity by drug and radiation combination which will identify additional areas of necessary clinical research.

Total Award ***$24,910***

Section VII:
Publications, Papers and Presentations

1. **El-Khatib E, Scrimger J, Murray B:** Reduction of the bremsstrahlung component of clinical electron beams: Implications for electron arc therapy and total skin electron irradiation. Phys Med Biol 36:111-118, 1991.
2. **Robinson DM, Scrimger JW:** Monoenergetic approximation of a polynergetic beam: A theoretical approach. Br J Radiol 1991 (in press).
3. **Robinson DM, Scrimger JW:** Modeling of Asymmetric Compensator Geometries. Med Phys 1991 (in press).
4. **Bradshaw S, Connors S, Scrimger JW:** The use of a universal wedge for asymmetric fields. Med Dosimet 16, 1991.
5. **El-Khatib E:** Reduction of the bremsstrahlung component of clinical electron beams. 76th Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Ill Nov 25-30, 1990. Radiol 177:298-299, 1990.
6. **El-Khatib E:** Use of film and thermoluminescent dosimetry for radiation dose measurements in heterogenous phantoms irradiated with electron beams. 76th Assemb and Ann Mtg of Radiol Soc N Am, Chicago, Ill Nov 25-30, 1990. Radiol 177:298, 1990.
7. **El-Khatib E, Scrimger J, Murray B:** Reduction of the bremsstrahlung component of clinical electron beams: Implications for electron arc therapy and total skin electron irradiation. 3rd Ann Scient Mtg of the Alberta Cancer Board, Banff, AB, November 23-25, 1990.
8. **El-Khatib E, Scrimger J, Murray B:** Reduction of the bremsstrahlung component of clinical electron beams: Implications for electron arc therapy and total skin electron irradiation. Wescan '91, 13th Ann Mtg, Vancouver BC, March 21-23, 1991.
9. **Robinson DM, Scrimger JW:** Poster presentation on the monoenergetic approximation of a polynergetic beam: A theoretical approach. 3rd Ann Scient Mtg of the Alberta Cancer Board, Banff, AB, November 23-25, 1990.
10. **Robinson DM, Scrimger JW:** Monoenergetic approximation of a polynergetic beam: A theoretical approach. Wescan '91, 13th Ann Mtg, Vancouver BC, March 21-23, 1991.
11. **Egerton M, Pruski E, Pilarski LM:** Cell generation within human thymic subsets defined by selective expression of CD45 (T200) isoforms. Human Immunol 27:333-347, 1990.
12. **Gillitzer R, Pilarski LM:** *In situ* localization of CD45 isoforms in the human thymus suggests a medullary location for the thymic generative lineage. J Immunol 144:66-71, 1990.
13. **Pilarski LM, Yacyshyn B, Jensen GS, Pruski E, Pabst HF:** b 1 integrin (CD29) expression on human postnatal T cell subsets defined by selective CD45 isoform expression. J Immunol 1991 (in press).
14. **Pilarski LM, Turley EA, Shaw ARE, Gallatin WM, Laderoute MP, Gillitzer R, Beckman IGR, Zola H:** FMC46, a cell protrusion-associated leukocyte adhesion molecule-1 (LAM-1) epitope on human peripheral lymphocytes and thymocytes. J Immunol 1991 (in press).
15. **Jensen GS, Mant MJ, Belch AJ, Berenson JR, Ruether BA, Pilarski LM:** Selective expression of CD45 isoforms defines CALLA$^-$ B lineage cells in peripheral blood from myeloma patients as late stage B cells. Blood 1991 (in press).
16. **Jensen GS, Andrews EJ, Mant MJ, Vergidis R, Ledbetter JA, Pilarski LM:** Transitions in CD45 isoform expression indicates a continuous differentiation of a monoclonal CD5$^+$ CD11b$^-$ B lineage in Waldenstrom's Macroglobulinemia. Am J Hematol 1991 (in press).

17. **Paterson ARP, Clanachan AS, Craik JD, Gati WP, Jakobs ES, Wiley JW, Cass CE:** Plasma membrane transport of neuclosides, nucleobases and nucleotides: An overview. Proc 4th Intnl Symp on Adenosine and Adenine Nucleotides. (Book Chapter 1990, in press).

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